

Experiment 8

Creating a VPC in Terraform

Aim

Learn how to use Terraform to create a basic Virtual Private Cloud (VPC) in AWS.

Steps

1. Create a main.tf file

```
Exp8 > main.tf
1 terraform {
2   required_providers {
3     aws = {
4       source = "hashicorp/aws"
5       version = "5.31.0"
6     }
7   }
8 }
9
10 provider "aws" {
11   region = var.region
12   access_key = var.access_key
13   secret_key = var.secret_key
14 }
15
```

2. Create vpc.tf file

```
Exp8 > vpc.tf
1 resource "aws_vpc" "ayroid" {
2   cidr_block = "10.0.0.0/16"
3 }
4
5 resource "aws_subnet" "ayroid-subnet" {
6   vpc_id      = aws_vpc.ayroid.id
7   cidr_block = "10.0.1.0/24"
8
9   tags = {
10     Name = "ayroid-subnet"
11   }
12 }
13
14 resource "aws_internet_gateway" "ayroid-gw" {
15   vpc_id = aws_vpc.ayroid.id
16
17   tags = {
18     Name = "ayroid-IG"
19   }
20 }
21
```

```

22 resource "aws_route_table" "ayroid-rt" {
23     vpc_id = aws_vpc.ayroid.id
24
25     route {
26         cidr_block = "0.0.0.0/0"
27         gateway_id = aws_internet_gateway.ayroid-gw.id
28     }
29
30     tags = {
31         Name = "ayroid-Route-Table"
32     }
33 }
34
35 resource "aws_route_table_association" "ayroid-rta" {
36     subnet_id      = aws_subnet.ayroid-subnet.id
37     route_table_id = aws_route_table.ayroid-rt.id
38 }
39
40 resource "aws_security_group" "ayroid-sg" {
41     name      = "my-ayroid-sg"
42     vpc_id    = aws_vpc.ayroid.id
43
44     ingress {
45         description      = "TLS from VPC"
46         from_port         = 20
47         to_port           = 20
48         protocol          = "tcp"
49         cidr_blocks       = ["0.0.0.0/0"]
50         ipv6_cidr_blocks  = [ ":::/0"]
51     }
52
53     egress {
54         from_port         = 0
55         to_port           = 0
56         protocol          = "-1"
57         cidr_blocks       = ["0.0.0.0/0"]
58         ipv6_cidr_blocks  = [ ":::/0"]
59     }
60
61     tags = {
62         Name = "my-ayroid-sg"
63     }
64 }

```

3. Run Terraform init and apply commands

• → **Exp8** terraform init

Initializing the backend...

Initializing provider plugins...

- Finding hashicorp/aws versions matching "5.31.0"...
- Installing hashicorp/aws v5.31.0...
- Installed hashicorp/aws v5.31.0 (signed by HashiCorp)

Plan: 6 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?

Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.


Enter a value: yes

```
aws_vpc.ayroid: Creating...
aws_vpc.ayroid: Creation complete after 1s [id=vpc-09386b7a9c5369e7e]
aws_internet_gateway.ayroid-gw: Creating...
aws_subnet.ayroid-subnet: Creating...
aws_security_group.ayroid-sg: Creating...
aws_internet_gateway.ayroid-gw: Creation complete after 1s [id=igw-0b26c2f61998874d4]
aws_route_table.ayroid-rt: Creating...
aws_subnet.ayroid-subnet: Creation complete after 1s [id=subnet-09ba485855e0da2d4]
aws_route_table.ayroid-rt: Creation complete after 1s [id=rtb-06c0a2bbe2cbacda8]
aws_route_table_association.ayroid-rta: Creating...
aws_route_table_association.ayroid-rta: Creation complete after 0s [id=rtbassoc-09ab9a5e87f9be379]
aws_security_group.ayroid-sg: Creation complete after 2s [id=sg-0d55c5bc5f51ba0b9]
```

Apply complete! Resources: 6 added, 0 changed, 0 destroyed.

4. Verify Resources on AWS

a. VPC

| | | | | |
|--------------------------|---|---------------------------------------|---|-------------|
| <input type="checkbox"/> | - | vpc-06a6d2f68c04e7ecf |  Available | 10.0.0.0/16 |
|--------------------------|---|---------------------------------------|---|-------------|


b. Subnet

| | | | | |
|--------------------------|---------------|--|---|---------------------------------------|
| <input type="checkbox"/> | ayroid-subnet | subnet-010c7aa4835e8b4f0 |  Available | vpc-06a6d2f68c04e7ecf |
|--------------------------|---------------|--|---|---------------------------------------|

c. Route table

| | | | | | |
|--------------------------|--------------------|---------------------------------------|--|---|----|
| <input type="checkbox"/> | ayroid-Route-Table | rtb-0c7a93722671efd9f | subnet-010c7aa4835e8b... | - | Nc |
|--------------------------|--------------------|---------------------------------------|--|---|----|

d. Internet Gateway

| | | | | |
|--------------------------|-----------|---------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> | ayroid-IG | igw-0ee28d334c38b7999 |  Attached | vpc-06a6d2f68c04e7ecf |
|--------------------------|-----------|---------------------------------------|--|---------------------------------------|

5. Clean up resources

```
aws_route_table_association.ayroid-rta: Destroying... [id=rtbassoc-06b27f63a6b7f489f]
aws_security_group.ayroid-sg: Destroying... [id=sg-0a13530fa8a50ee8e]
aws_route_table_association.ayroid-rta: Destruction complete after 1s
aws_subnet.ayroid-subnet: Destroying... [id=subnet-010c7aa4835e8b4f0]
aws_route_table.ayroid-rt: Destroying... [id=rtb-0c7a93722671efd9f]
aws_security_group.ayroid-sg: Destruction complete after 1s
aws_subnet.ayroid-subnet: Destruction complete after 0s
aws_route_table.ayroid-rt: Destruction complete after 0s
aws_internet_gateway.ayroid-gw: Destroying... [id=igw-0ee28d334c38b7999]
aws_internet_gateway.ayroid-gw: Destruction complete after 1s
aws_vpc.ayroid: Destroying... [id=vpc-06a6d2f68c04e7ecf]
aws_vpc.ayroid: Destruction complete after 0s
```

Destroy complete! Resources: 6 destroyed.

